

Application No. 10/693,569

Amendment dated 06/11/2007 responding to Office Action dated 02/09/2007

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**REMARKS**

These remarks address the Examiner's comments made in the Office Action mailed 02/09/2007.

**(1) Claims 1 and 15 objected to for informalities**

Claims 1 and 15 were objected to for informalities.

Claim 1 has been amended to change "couplable" to "coupled".

Claim 15 has been amended to change "off" to "of".

**(2) Claims 1-9 rejected over admitted prior art**

Claims 1-9 were rejected under 35 USC 102(b) as anticipated by admitted prior art.

The Examiner has read the head unit into the claimed amplifier system, equating it with the "control unit" recited in claim 1. Claim 1 has been amended to prevent this inappropriate reading. Applicant's invention enables an installer or user – who has access to the head unit but may not have access to the amplifier while listening to the stereo – to make adjustments to controls which, in the prior art, are mounted on the amplifier, not on the head unit. Even the twisted reading of claim 1 in the office action does not address this fact.

The prior art (as typified by Fig. 1 or 2) includes a head unit coupled to an external amplifier. The claimed invention (as typified by Fig. 11, 12, or 13) includes an external amplifier and a control unit which interfaces the external amplifier to a head unit (which is not part of the claimed invention).

Claim 1 distinguishes over the prior art by reciting "a control unit couplable to the head unit" as well as a separate amplifier unit. The office action is incorrect in equating "a control unit" with "the head unit". The office action is incorrect in equating the terminals 30, 36 on the back of the head unit with the control unit's input connector(s) recited in claim 1; note also that connectors 30 are output terminals, not inputs (see page 1 line 22). The office action is incorrect in equating the volume knob 14 of the head unit and/or the bass boost pod 22 with the gain etc. controls of the control unit (which, in the prior art, would be located on the amplifier and not on the head unit or bass boost pod). The office action is incorrect in equating the outputs 30 of the

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head unit with the outputs of the control unit. The office action is incorrect in equating the inputs 32 of the prior art amplifier with the inputs of the claimed amplifier, because in the prior art the amplifier inputs are not “for receiving the modified audio signal output from the control unit” – specifically, in the prior art, they receive pre-modification audio signals from the head unit.

Claim 2 distinguishes over the admitted prior art by including the limitations of claim 1, and further by reciting that the control unit includes a pre-amplifier.

Claim 3 distinguishes over the admitted prior art by including the limitations of claim 1, and further by reciting that the control unit receives at least two channels from the head unit, and further by reciting that the circuitry of the control unit includes means for combining two channels of audio signal and providing a combined signal to one channel of the output connector. The office action attempts to analogize this to the prior art, but utterly fails; simply routing two separate signals to two separate pins in a DIN connector is not “combining” those signals into a single signal which is “provid[ed]... to one channel at the output connector” (emphasis added).

Claim 4 distinguishes over the prior art by including the limitations of claims 1 and 3, and further by reciting signals and connectors of the control unit (which is not the head unit).

Claim 5 distinguishes over the prior art by including the limitations of claim 1.

Claim 6 distinguishes over the prior art by including the limitations of claims 1 and 5, and further by reciting that the amplifier includes both RCA jacks and a DIN connector. The admitted prior art (see Figs. 2 and 5) amplifier includes only RCA jacks.

Claim 7 distinguishes over the prior art by including the limitations of claim 1, and further by reciting that all of the controls of the amplifier system (which does not include the head unit) are located on the control unit. This is yet another pointed example of the office action’s logic breaking down under scrutiny. The office action claims, quite erroneously, that claim 7 reads on the admitted prior art in that all of the controls of the audio amplifier system are located on the control unit, for which it then cites the master volume knob 14, the boost knob 22, and the radio station preset buttons as though those were the required “all of the controls” (emphasis added), all the while pointing to Fig. 1. However, Fig. 2 is a rear view of the same equipment as in Fig. 1, and in Fig. 2, various Gain, High Pass, and Low Pass controls are clearly visible (as they are in the Fig. 5 view of that same amplifier). In Figs. 1 and 2, there are shown a

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head unit 12, an amplifier 16, and a bass boost unit 22. None of those is a “control unit” for the amplifier, and the only one of those components which includes “all of the controls of the audio amplifier system” is the amplifier – not a separate control unit as recited in Claim 7.

Claim 8 distinguishes over the prior art by including the limitations of claim 1, and further by reciting that the control unit includes a gain characteristic control. Note, once again, that in the prior art Figs. 1 and 2 the gain characteristic is located on the amplifier, not on the head unit which the office action has attempted to equate with an amplifier control unit.

Claim 9 distinguishes over the prior art by including the limitations of claim 1, and further by reciting that the control unit includes controls for gain and at least one of high pass, low pass, delay, phase, subsonic filter, parametric, and bass boost. Once again, the admitted prior art does not even have an amplifier control unit – the controls are built into the amplifier itself (which is precisely the problem that this invention fixes). And, once again, the office action has attempted to equate the head unit with an amplifier control unit; but it is once again very instructive that the head unit does not contain any low pass, high pass, delay, phase, subsonic filter, parametric, or bass boost controls, demonstrating again the flaws in the office action’s logic.

**(3) Claims 10-21, 24-25 rejected over admitted prior art with Reynolds**

Claims 10-21, 24-25 were rejected under 35 USC 103(a) as unpatentable over the admitted prior art in view of US Patent No. 5,444,868 to Reynolds.

Reynolds teaches a common form factor transceiver 12 which can mate with any of a plurality of different amplifiers 14 and any of a plurality of “control heads” 16. These three components are screwed together using brackets and gaskets into a single, waterproof “radio” whose lateral dimensions are fixed and whose longitudinal dimension varies according to the depth of the chosen amplifier.

Claim 10 distinguishes over the admitted prior art with Reynolds by including the limitations of claim 1, and further by specifying that the amplifier includes a docking bay into which the control unit can be docked.

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Reynolds teaches, in Fig. 1B and the accompanying text (col. 5 lines 29-43) that the control head “may be fitted with a common adapter 22 on its rear end and electrically coupled to the rear end of the power amplifier as schematically illustrated in FIG. 1B. ... Thus, the control head and adapter may be located remotely from the combined transceiver and power amplifier. For example, the control head in this form may be mounted on the dash of a vehicle and electrically coupled to the transceiver and selected power amplifier located in the trunk of the vehicle.” In other words, this is exactly like the prior art except that the control head requires an “adapter” (whose purpose and function are never explained by Reynolds; and he also does not explain what the function of the transceiver would be in this configuration, given that the head/adapter are coupled directly to the rear of the amplifier).

Reynolds does not teach or suggest a “docking bay” as recited in claim 10. Note particularly that in all of Reynolds’ drawings, the control head, transceiver, and amplifier are simply butted end-to-end and fastened with screws. This hardly constitutes a “bay”. Dictionary.com includes the following definition of “bay”: “A space in a cabinet into which a device of a certain size can be physically mounted and connected to power and data.” (emphasis added) Further, neither Reynolds nor the admitted prior art teaches a “control unit” to begin with.

Claim 11 distinguishes over the admitted prior art with Reynolds by including the limitations of claims 1 and 10, and further by reciting that the docking bay includes “an input connector adapted to mate with the output connector of the control unit”. By way of contrast, Reynolds teaches that (and it must necessarily be that) his adapter 22 couples to the amplifier via a cable. Indeed, even his direct matings such as shown in Fig. 2 all show the components being connected by cables, never directly mating connector to connector.

Claim 12 distinguishes over the admitted prior art with Reynolds by reciting a control unit and an amplifier, for use with a head unit (mentioned in the preamble, not in the body of the claim). All of Reynolds’ controls (which are never mentioned in the text but which are visible in the drawings) are on his “control head” 16. In the admitted prior art, all of the controls are either on the head unit or on the amplifier. Nothing in either reference, nor in the combination of them, suggests having a separate control unit which has controls on it. And understandably so – the

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admitted prior art was invented for the purpose of moving the heat-producing amplifier to the car's trunk, and Reynolds' device was invented for the purpose of enabling modular, mix-and-match combinations of different control heads with different amplifiers into a single "radio". By way of stark contrast, Applicant's invention was made for the completely unrelated purpose of enabling adjustments of a trunk-mounted amplifier to be made from within the passenger compartment e.g. during installation. Thus, the claimed invention includes a "control unit" which neither the admitted prior art nor Reynolds had any motivation to invent or describe.

Claim 13 distinguishes over the admitted prior art with Reynolds by including the limitations of claim 12, and further by reciting a cable connecting the amplifier's input to the output of the control unit (which is absent in both the admitted prior art and Reynolds).

Claim 14 distinguishes over the admitted prior art with Reynolds by including the limitations of claims 12 and 13, and further by specifying DIN connectors on both the amplifier and the control unit. Neither the admitted prior art nor Reynolds suggests a DIN connector on the amplifier.

Claim 15 distinguishes over the admitted prior art with Reynolds by including the limitations of claim 12, and further by reciting that the controls on the control unit comprise all of the amplifier's controls. Such a configuration is never mentioned in Reynolds, and the admitted prior art expressly teaches away from it (to wit, Figs. 2 and 5 expressly show controls on the amplifier itself).

Claim 16 distinguishes over the admitted prior art with Reynolds by including the limitations of claim 12, and further by specifying that the controls include a filter control. Both the admitted prior art and Reynolds are completely silent as to any filter controls.

Claim 17 distinguishes over the admitted prior art with Reynolds by including the limitations of claims 12 and 16, and further by specifying that the controls include a delay control. Both the admitted prior art and Reynolds are completely silent as to delay controls.

Claim 18 distinguishes over the admitted prior art with Reynolds by including the limitations of claims 12, 16, and 17, and further by reciting that the controls include a phase control. Both the admitted prior art and Reynolds are silent as to phase control.

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Claim 19 distinguishes over the admitted prior art with Reynolds by including the limitations of claims 12, 16-18 and further by reciting that the controls include a bass boost control.

Claim 20 has been cancelled.

Claim 21 distinguishes over the admitted prior art with Reynolds by including the limitations of claim 12, and further by reciting that the controls include a multi-channel equalizer. Both the admitted prior art and Reynolds are silent as to equalization.

Claim 24 distinguishes over the admitted prior art with Reynolds by including the limitations of claim 12, and further by reciting that the amplifier includes a docking bay. As explained above, neither the admitted prior art nor Reynolds teaches a docking bay.

Claim 25 distinguishes over the admitted prior art with Reynolds by including the limitations of claim 12, and further by reciting a laundry list of controls (on the control unit), many of which are absent from the admitted prior art and from Reynolds.

Applicant notes that the heading of paragraph 4 on page 5 of the office action indicates that "Claims 10-21, 24-25 are rejected" over the admitted prior art with Reynolds, but that page 11 of the office action appears to include rejections of claims 26-30 as well. The heading appears to be simply a typo, and Applicant will respond as though claims 26-30 had also been included in the heading.

Claim 26 distinguishes over the admitted prior art with Reynolds by reciting (in the preamble) a control unit in addition to a head unit and an external amplifier, and by reciting (in the body) the method of "being positioned within the passenger compartment ... while listening to sound ... adjusting a control on the control unit". Neither the admitted prior art nor Reynolds includes a control unit, and therefore one could not use those systems to perform the recited method steps.

Claim 27 distinguishes over the admitted prior art with Reynolds by including the limitations of claim 26, and further by specifying the step of "adjusting a channel gain control" on the control unit.

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Claim 28 distinguishes over the admitted prior art with Reynolds by including the limitations of claims 26 and 27, and further by specifying the step of “adjusting a channel filter control” on the control unit.

Claim 29 distinguishes over the admitted prior art with Reynolds by including the limitations of claims 26-28, and further by specifying the steps of “switching back and forth between audio signals” and “adjusting an input level adjustment control on the control unit”. Neither the admitted prior art nor Reynolds remotely suggests such steps, nor does either provide a means whereby such steps could be accomplished even if it were suggested.

Claim 30 distinguishes over the admitted prior art with Reynolds by including the limitations of claims 26-29, and further by specifying the step of “removing the control unit from the passenger compartment” and “docking the control unit into a docking bay on the external amplifier”. As explained above, neither the admitted prior art nor Reynolds teaches a docking bay. Reynolds, in fact, teaches away from these steps, in that it teaches that in one embodiment the control head, transceiver, and amplifier are screwed together into a single, watertight unit that is mounted in the dash, and that in the other embodiment the control unit and adapter are located in the dash and the transceiver and amplifier are located in the trunk – it’s an either/or with his two embodiments.

**(3) Claims 22-23 rejected over admitted prior art with Reynolds and Koulopoulos**

Claims 22-23 were rejected under 35 USC 103(a) as unpatentable over the admitted prior art in view of Reynolds and US Patent No. 5,243,344 to Koulopoulos.

Claim 22 distinguishes over the admitted prior art with Reynolds and Koulopoulos by including the limitations of claim 12, and further by reciting an input selector control (knob 54 in Fig. 7 does double duty as input selector e.g. by turning, and as on/off switch e.g. by pushing).

Claim 23 distinguishes over the admitted prior art with Reynolds and Koulopoulos by including the limitations of claims 12 and 22, and further by specifying that the control unit includes means for compensating for signal level differences between signals from the head unit versus those from the auxiliary inputs (e.g. external iPod).

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Koulopoulos teaches a sigma-delta D-to-A converter which "volume control is performed on the audio signal in both the digital domain and the analog domain in order to optimize performance and minimize noise." That has nothing to do with the present invention. The cited portion of Koulopoulos (col. 14 lines 45-55) teaches a selector for selecting between multiple input signals, but is silent as to adjusting volume control accordingly.

### CONCLUSION

Applicant respectfully requests allowance of the claims. The art cited neither anticipates nor obviates the claimed subject matter.

Respectfully submitted,



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